tween Big-ET and ET-1 antisera. In addition, staining for specific cell types, including macrophages (KP-1), endothelial cells (Factor VIII), and myointimal cells (actin), was performed. Eight primary native lesions, six restenotic lesions, and six vein graft (VG) lesions were studied. In all lesion types, intracellular Big-ET and ET-1 were present and in the extracellular matrix and colocalized to area with endothelial cells, macrophages, fibroblasts, and myointimal cells. ET-1 and Big-ET were colocalized to area with myointimal cells only in the primary native lesions. This study demonstrates the presence of Big-ET and ET-1 in coronary and VG atherosclerotic and restenotic lesions. This study suggests that ET is produced locally in the atherosclerotic and restenotic lesions by endothelial and nonendothelial cells. ET may play a role in the changes in tissue architecture and pathogenesis of coronary and VG atherosclerosis and restenosis.

1012-106 The Genotype of the ACE Gene and Collateral Formation

Nobuyuki Ohmichi, Yasuyuki Nakamura, Naoharu Iwai, Masahiko Kinoshita. *1st Dept. of Intern Med, Shiga Univ of Med Sci, Ohtu, Japan*

The DD genotype of the angiotensin converting enzyme (ACE) gene has been reported to be a risk factor of myocardial infarction (MI), ischemic and idiopathic dilated cardiomyopathy, and left ventricular hypertrophy. The DD genotype of the ACE gene is associated with higher plasma ACE level, and thus may be associated with higher angiotensin II production in peripheral tissues. Because intimate involvement of angiotensin II in ventricular remodeling after MI has been reported, the genotype of the ACE could influence ventricular function after MI. The study population consisted of 66 subjects of MI who were performed twice coronary angiography (CAG) and left ventriculography(LVG). The first LVG was performed at 3.0 ± 2.9 months, and the second was performed at 10.2 ± 9.9 months from the onset of MI.

	ID + DD (n = 41)	II (n = 25)	P
EF 1st	0.568 ± 0.153	0.590 ± 0.116	0.547
EF 2nd	0.543 ± 0.133	0.623 ± 0.113	0.015
Collateral(+/−)	6/35	9/16	0.045

EF 2nd in subjects with either ID or DD genotype was significantly lower than in subjects with II genotype. Interestingly, presence of collateral circulation to infarct-related artery at the first CAG was more frequently observed in subjects with II genotype. To confirm the latter, we analyzed all subjects with ischemic heart disease who were performed CAG in our department in 1993.

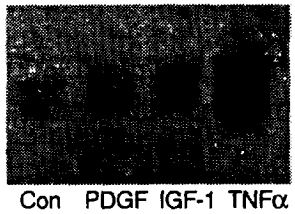
	ID + DD (n = 91)	II (n = 67)	P
Female/Male	19/72	15/52	0.820
AP/OMI	21/70	23/44	0.119
RCA + Cx/LAD	37/54	34/33	0.208
TIMI(0-2/3)	51/40	38/29	0.932
Collateral(+/−)	28/63	36/31	0.003

Thus, presence of collateral circuletion was more frequent in subjects with II genotype. This study suggests that the ACE genotype may influence left ventricular function after MI through affecting collateral formation.

1012-107 Monocyte Chemotactic Protein-1 Expression in Smooth Muscle Cell Cultures Derived from Human Coronary Arteries

M. Marius Rozek, R. Stefan Kiesz. *UTHSC at San Antonio, TX*

Peripheral blood monocytes and monocyte-derived macrophages are believed to play a pivotal role in the development of early atherosclerotic lesions. Excessive smooth muscle cell (SMC) proliferation leads to coronary restenosis after interventional procedures. We postulate that monocyte chemotactic protein-1 (MCP-1), by attracting monocytes to the site of vascular injury may indirectly augment this process. We also hypothesize that MCP-1 expression by human SMC may be mediated by cytokines and growth factors. Accordingly, we studied SMC cultures derived from tissue obtained by directional coronary atherectomy, evaluating MCP-1 expression by Northern blot analysis. Cells were grow in M-199 medium to over 95% confluence, for the last 24 hrs in serumless medium. MCP-1 expression was assessed in unstimulated (control) cells, and after 6 hrs stimulation with platelet derived growth factor (PDGF), insulin-like growth factor-1 (IGF-1) and tumor necrosis factor alpha (TNF_α). Autoradiographs were developed, scanned and digitized using NIH 1.53b10 software. Our findings suggest that unstimulated human coronary SMC derived cultures express MCP-1 and furthermore this expression is markedly increased after stimulation with cytokines (by 21.4% after stimulation with PDGF, 30.3% after IGF-1 and 119.1% after TNF_α).



Conclusions: SMC cultures derived from human coronary samples obtained by DCA express MCP-1 during their quiescent phase, and this expression is markedly increased by the cytokines PDGF, IGF-1 and TNF_α. Thus by attracting monocytes to the area of vascular injury, MCP-1 may be intimately involved in coronary restenosis, playing an important role in the pathophysiology of this process.

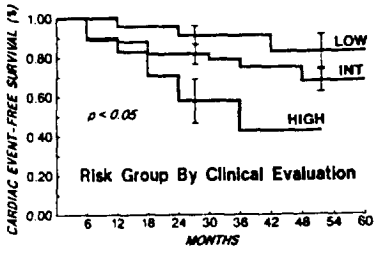
1013 Peripheral Vascular Disease — Thrombosis

Wednesday, March 22, 1995, Noon–2:00 p.m.
Ernest N. Morial Convention Center, Hall E
Presentation Hour: 1:00 p.m.–2:00 p.m.

1013-68 Postoperative and Late Prognosis for Diabetics Undergoing Vascular Surgery: Combining Clinical Evaluation and Dipyridamole-Thallium Imaging Improves Risk Stratification

Sumita D. Paul, Gilbert J. L'Italien, Robert C. Hendel, Jeffrey A. Leppo, Christopher M. Coley, Kim A. Eagle. *University of Massachusetts Medical Center, Worcester, MA; Massachusetts General Hospital, Boston, MA*

Prior studies suggest that pts with diabetes mellitus (DM) have a poor prognosis after vascular surgery and do not benefit from preoperative risk stratification by clinical evaluation or dipyridamole-thallium (DT) imaging because of a high prevalence of underlying coronary artery disease. To determine the postop and late prognosis for diabetics undergoing vascular surgery and the utility of clinical evaluation and DT for stratifying risk; we studied 122 pts with DM who underwent clinical evaluation and DT prior to vascular surgery. Based on the number of clinical markers present (using a previously described clinical risk index: prior MI, angina, Q wave on ECG, age > 70 yrs, CHF); pts were classified into low (0), intermediate (1–2), and high risk (>2 markers) for postop and late cardiac events. DT was assessed for reversible (REV) and fixed defects. There were 17 (14%) pts with postop events (4 cardiac deaths, 13 non-fatal MIs), and 23 (22%) with late events (8 cardiac deaths, 15 non-fatal MIs) on follow up which was possible in 98% of pts and was to 50 ± 5 months (75th quintile). On multivariate analysis, the only predictor for postop event was REV ($p < 0.01$) in this inherently high risk cohort. Successful risk stratification for late events was achieved by clinical index. DT was not of prognostic value for late event.



Conclusions: (1) Although diabetics are at high risk for events, dipyridamole-thallium imaging provides additional useful perioperative risk stratification. (2) The absence of clinical markers identifies a group with significantly better late cardiac event-free survival.

1013-69 Dipyridamole Rb-82 Positron Emission Tomography Has Limitations for Predicting Cardiac Events Peri- and Post-Operatively after Vascular Surgery

Kesavan Shan, Thomas Marwick, Raymundo Go, William MacIntyre, Donald Underwood, James Thomas. *Cleveland Clinic Foundation, Cleveland, OH*

Thallium imaging has been used to risk-stratify pts undergoing vascular surgery (VS), though the efficacy of this approach is debated. Positron emission tomography (PET) has the benefit of permitting a true resting scan, mea-